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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,491	08/21/2006	Joseph P. Kennedy JR.	GRA26 019US	8445

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EXAMINER	
GESESSE, TILAHUN	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/556,491	KENNEDY ET AL.	
	Examiner	Art Unit	
	Tilahun B. Gesesse	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3 and 6-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23* is/are allowed.

6)☒ Claim(s) *3,6-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 3,6-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 3,6- are rejected under 35 U.S.C. 102(e) as being anticipated by Kennedy , Jr (US 7,162,252).

Claim 3. Kennedy '252 teaches a geographic area served by a wireless communication system having a sparse network overlay geo-location system in which a primary wireless location sensor associated with a serving base station provides information about a signal received from a mobile appliance to another wireless location sensor as to enable the another wireless location sensors to measure an attribute of the signal, (see abstract and figures 1-2, in which the common network overlay location system shares geo-location asset (apparatus such as LMU , geo-location control system and MPC and LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival

signal power and combination of the same, LMU configures to provide acceptable level of accuracy while minimizing a function.

Kennedy teaches a method of locating the mobile appliance independently from the primary wireless location sensor (WLS or LMU) LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same (abstract) in which shares the measured attributes of the transmitted mobile station.

Kennedy teaches performing ambiguity function processing using known data sequences in the signal and the signal received at the another wireless location sensor (see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110 and (WLS or LMU) LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same (abstract) in which transmitted signals from mobile station measured using time of arrival (TOA) , time difference of arrival (TA) , angle of arrival (AOA) and combination to locate mobile station at unknown area by sharing such measurements from mobile appliance.

Kennedy teaches measuring an attribute of the signal at the another wireless location sensor (see column 7, lines 44-51) in which measure attributes shared with other LMU (WLS) see fig.2 251 and fig. 3 item 350).

Kennedy teaches estimating the location of the mobile appliance based at

least in part by measured attribute (see abstract the location of the LMU are configured to provide an acceptable level of location accuracy and (see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110).

Claim 6. In a wireless communication system having a sparse deployment of wireless location sensors wherein one base stations of the wireless communication system is not associated with a co-located wireless location sensor , see abstract and figures 1-2, in which the common network overlay location system shares geo-location asset (apparatus such as LMU , geo-location control system and MPC and LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same, LMU configures to provide acceptable level of accuracy while minimizing a function.

Kennedy teaches a method of detecting and measuring an attribute of a target signal independently of a WLS co-located at a serving base station (see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110.

Kennedy teaches receiving the target signal in one neighboring WLS(see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110.

Kennedy teaches performing ambiguity function processing using known

data sequences in the target signal and the received target signal (see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110

Claim 7. Kennedy teaches retrieving the known data sequences in the target signal from an Abis monitoring unit (see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110.

Claim 8, Kennedy teaches the known data sequences are predetermined training sequences(see column 1,lines 54-column 2, line15) in which LMU "WLS" locates the mobile station 110 at an ambiguity area by measuring Abis and control and sequence of data received from MS110

Claims 9, 17 Kennedy teaches a wireless communication system having a sparse deployment of wireless location sensors wherein one base stations of the wireless communication system is not associated with a co-located wireless location sensor a method for estimating a location of a mobile appliance in a sparse WLS deployment system wherein the number of WLS detecting and measuring an attribute of a signal of the mobile appliance is less than a predetermined number necessary for estimating a location, (see abstract and figures 1-2, in which the common network overlay location system shares geo-location asset (apparatus such as LMU , geo-location control system and MPC and LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same, LMU configures to provide acceptable level of accuracy while minimizing a

function.

Kennedy teaches a system of locating the mobile appliance independently from the primary wireless location sensor (WLS or LMU) LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same (abstract) in which shares the measured attributes of the transmitted mobile station.

Kennedy teaches selecting one location surfaces determined as a function of one in the group comprising a timing advance of the signal, see column 7, lines 44-51).

Kennedy teaches estimating the location of the mobile appliance based on the measured attribute of the signal and the one location surfaces (see column 7, lines 44051 and column 8, lines 6-20) .

Claim 12, Kennedy teaches the transmitted power of the signal is provided by an Abis monitoring unit (column 1, lines 54-column 2, lines 15).

Claim 13, Kennedy teaches a propagation range of the second signal is greater than a propagation range of the signal (see column 7, lines 44-51).

Claim 14, Kennedy teaches the EOTD data is provided by an Abis monitoring unit (see column 1, lines 54-column 2, lines 15).

Claims 15-16, Kennedy teaches the selection is based on a predetermined criteria (see column 7, lines 44-51).

Claim 1, Kennedy teaches data for EOTD is provided by an Abis monitoring unit (see column 1, lines 54-column 2, line 15) in which time difference of arrival (TDOA) (see column 7, lines 44-51).

Claim 19, Kennedy '252 teaches a geographic area served by a wireless

communication system having a sparse network overlay geo-location system in which a primary wireless location sensor associated with a serving base station provides information about a signal received from a mobile appliance to another wireless location sensor as to enable the another wireless location sensors to measure an attribute of the signal, (see abstract and figures 1-2, in which the common network overlay location system shares geo-location asset (apparatus such as LMU , geo-location control system and MPC and LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same, LMU configures to provide acceptable level of accuracy while minimizing a function.

Kennedy teaches a method of locating the mobile appliance independently from the primary wireless location sensor (WLS or LMU) LMUs are configurable and switchable to measure attributes of the transmitted signal from mobile station belonging to any of the wireless carries and estimates the location of the mobile station using time of arrival, time difference of arrival , angle of arrival signal power and combination of the same (abstract) in which shares the measured attributes of the transmitted mobile station.

Kennedy teaches obtaining a set of candidate measurement data selected from the group of multi-path signature and time of arrival measurements (see column 7, lines 44-51 and abstract).

Kennedy teaches comparing the set of candidate measurement data with a set of predetermined measurement data (see column 9, lines 6-42). Kennedy teaches determining the location of the mobile appliance based on the comparison (see column 9, lines 6-42).

Claims 20-22, Kennedy teaches the multi-path signature is a function of one of the group comprising power or angle (see column 7, lines 44-51).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy '252 in view of Fischer

Claims 10-11, Kennedy does not expressly teach a function of the speed and differential Doppler. However, Fisher teaches a function of the speed (column 11, line 65-col.12, line 4) and differential Doppler (column 11 line 65—column 12, line 4)

Those skilled in the art would recognize that the result from several measurement periods can be processes using LMU, using proximate movement e.g. Direction, speed or Doppler etc. of mobile station, in order to determine location of device.

Allowable Subject Matter

6. Claim 23 is allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tilahun B. Gesesse whose telephone number is 571-272-7879. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 15, 2008
T.B.G

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